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EXAMINER

PARSONS, THOMAS H

ART UNIT

PAPER NUMBER

1745

DATE MAILED: 09/29/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/033,534

Applicant(s)

HOVI ET AL.

Examiner

Thomas H Parsons

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 01 November 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-29 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-19 and 21-29 is/are rejected.
- 7) ☒ Claim(s) 20 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 09 April 2002 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) <u>5</u> . | 6) <input type="checkbox"/> Other: |

DETAILED ACTION

Specification

1. The disclosure is objected to because of the following informalities:

Page 1, line 18, suggest changing "is above typically" to --above is typically--; and,

Page 7, line 1, suggest changing "ground reference" to --negative reference--.

Appropriate correction is required.

Drawings

2. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they do not include the following reference sign(s) mentioned in the description: "14a" and "16a" as mentioned on page 6, line 17. A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

3. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they include the following reference sign(s) not mentioned in the description: "16" and "18" as shown pointing to face portion 22 of Figure 1; "171", "173", "176", "164", "165", "166", and "168" as shown on Figure 5. A proposed drawing correction, corrected drawings, or amendment to the specification to add the reference sign(s) in the description, are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 1-6, 9-11, 13-17, 19, 21-26 and 28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cisar et al. (5,736,271), and further in view of Boyer (US 2002/0009584).

Claim 1: Cisar et al. in Figures 1-3 disclose a battery pack (100) for an electronic device (abs.) comprising: at least one battery cell assembly (cells 125 and 130), an interface assembly cap (IC board 150) having a size and shape for complementary engagement with one end portion (122) of the battery cell assembly for providing an electrical connection means between said at least one cell and the electronic device, the interface assembly further providing an electrical connection (via a pin and socket assembly [unlabeled] to the at least one cell whether the battery pack is positioned within or outside the electronic device (col. 2: 65-col. 4: 11; col. 4: 52 - col. 6: 26; and col. 7: 15-23).

Cisar et al. do not disclose a resin encasing the battery cell assembly.

Boyer discloses a resin encasing a battery cell assembly (page 1, paragraph [0024]. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified the battery pack of Cisar et al. with the resin of Boyer because Boyer teaches that it is known to encapsulate battery packs with resin, and a microcellular foamed resin

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encapsulation material that would have provided a low cost packaging material thereby lowering overall costs associated with manufacturing.

Claim 2: The rejection is as set forth above wherein further Boyer on page 2, paragraph [0029] discloses resin further comprising a low temperature melting resin (i.e. polyamides and urethanes which are the same as those instantly disclosed).

Claim 3: The rejection is as set forth above in claim 2 wherein Boyer discloses a resin further comprising a polyamide.

Claims 4-6: The rejection is as set forth in claim 1 wherein further Boyer discloses on page 2, paragraph [0029] discloses a thin foil wrapped around a battery cell assembly, wherein the thin foil further comprises an adhesive foil, and wherein the thin foil further comprises a non-metallic/non-conducting adhesive foil (i.e. polyethylene terephthalate (PET) which is the same as instantly disclosed).

Claims 9 and 10: Cisar et al. disclose that the interface assembly cap (IC board 150) further comprises electrical connection contacts (200, 202, 184 and 190) for providing external access to positive and negative voltage reference potentials, and wherein the voltage reference potential contacts are positionally located in accordance with the positional locations of the voltage reference potential contacts of the electronic device with which the battery pack is used (col. 6: 22- col. 7: 26; and col. 3: 3-7).

Claim 11: Cisar et al. disclose means (pin and socket assembly as defined by 200, 202, 184 and 190) for aligning the battery pack when positioned within the electronic device (col. 6: 22- col. 7: 20).

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Claim 13: The recitation “for use in a cellular telephone” has been construed as a statement of intended use which does not limit the overall physical structure of the battery pack.

As to the battery pack, the rejection is as set forth in claim 1.

Claim 14: Cisar et al. disclose in Figures 1-3 providing at least one battery cell assembly (100) having a desired shape and size and a positive voltage potential terminal and a negative voltage potential terminal (184, 190); providing an electrically conductive means for interfacing between the battery cell assembly and the electronic device (pin and socket assembly); electrically connecting the electrically conductive means to the battery cell assembly wherein the positive voltage potential terminal is connected to the positive voltage supply path of the electrically conductive means and the negative voltage potential terminal is connected to the negative voltage supply path of the electrically conductive means (200, 202) (col. 2: 65-col. 4: 11; col. 4: 52 - col. 6: 26; and col. 7: 15-23).

Cisar et al. do not disclose placing the electrically conductive means and the battery cell assembly into a mold; positioning and maintaining the electrically conductive means adjacent to and in contact with one end of the battery cell assembly; closing the mold; pouring a low temperature melting resin into the mold to encase the electrically conductive means and battery cell assembly; and removing the thus molded battery pack from the mold.

Boyer in Figures 1-3 discloses placing the electrically conductive means and the battery cell assembly into a mold; positioning and maintaining the electrically conductive means adjacent to and in contact with one end of the battery cell assembly; closing the mold; pouring a low temperature melting resin into the mold to encase the electrically conductive means and

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battery cell assembly; and removing the thus molded battery pack from the mold (paragraphs [0024] through [0038]).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified the method of Cisar et al. by incorporating the method steps of Boyer because Boyer teaches a method molding a battery pack for an electronic device that would have reduced or eliminated hold/pack pressures within the mold, machine downsizing and shortening of cycle time thereby lowering the cost of manufacturing encapsulated devices.

Claim 15: The rejection is as in claim 14 wherein Boyer discloses that the step of pouring further comprises pouring a polyamide (paragraph [0029]).

Claim 16: The rejection is as set forth in claim 14 wherein Boyer discloses that the step of pouring further comprises pouring a polyurethane (paragraph [0029]).

Claim 17: The rejection is as set forth in claim 14 wherein Boyer discloses the step of molding under low pressure (paragraph [0006]).

Claim 19: Cisar et al. disclose that the step of providing an electrically conductive means further comprises providing a printed circuit board (208)(col. 7: 9-26).

Claim 21: The rejection is as set forth in claim 14 wherein Boyer discloses that the step of placing into a mold further comprises placing into a metal mold (paragraph [0024] which discloses "any conventional mold").

22. Cisar et al. in Figures 1-3 and 7 disclose a battery pack (100) for a cellular telephone comprising: at least one battery cell assembly (100) having a desired shape and size and a positive voltage potential terminal and a negative voltage potential terminal (184 and 190); means (pin and socket assembly) defining an electrical conductive path for interfacing the

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battery cell assembly and the cellular telephone, wherein the electrical conductive path means has a positive voltage potential contact electrically connected to the battery cell assembly positive voltage potential terminal and a negative voltage potential contact electrically connected to the battery cell assembly negative voltage potential terminal (200, 202), said positive and negative voltage potential contacts located and positioned for contact with the positive and negative voltage potential terminals of a cellular telephone with which the battery pack is used (col. 2: 65-col. 4: 11; col. 4: 52 - col. 6: 26; and col. 7: 15-23).

Cisar et al. do not disclose a resin encasing the battery cell assembly and the electrical conductive path means to form a relatively thin wall molded battery pack.

Boyer discloses a resin encasing a battery cell assembly and the electrical conductive path means to form a relatively thin wall molded battery pack. (page 1, paragraph [0024]. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified the battery pack of Cisar et al. with the resin of Boyer because Boyer teaches that it is known to encapsulate battery packs with resin, and a microcellular foamed resin encapsulation material that would have provided a low cost packaging material thereby lowering overall costs associated with manufacturing.

Claims 23-25: The rejection is as set forth in claim 22 wherein further Boyer discloses on page 2, paragraph [0029] discloses a thin foil wrapped around a battery cell assembly, wherein the thin foil further comprises an adhesive foil, and wherein the thin foil further comprises a non-metallic/non-conducting adhesive foil (i.e. polyethylene terephthalate (PET) which is the same as instantly disclosed).

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Claims 26 and 28: Cisar et al. in Figure 3 disclose that electrical path conductive means further comprise charging control circuitry (IC board 152); and, that the electrical path conductive means further comprise interfacing connection means (IC board 150) between the battery cell and charging control circuitry in the cellular telephone (col. 3: 65-67; and col. 5: 21-27).

6. Claims 7, 8, 12 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cisar, and further in view of Boyer as applied to claim 1 and 14 above, and further in view of Watanabe et al. (6,492,058).

Cisar et al. and Boyer are as applied, argued, and disclosed above, and incorporated herein.

Claim 7 and 18: The Cisar et al. combination does not disclose end cap having a size and shape for complementary engagement with an end portion of said battery cell opposite said interface assembly end portion.

Watanabe et al. disclose in Figure 2 end cap (holder 6) having a size and shape for complementary engagement with an end portion of said battery cell opposite said interface assembly end portion (9).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified the battery pack of the Cisar et al combination by incorporating the end cap of Watanabe et al. because Watanabe et al teach an end cap that would have reduced protection circuit malfunction generated by battery electrolyte leakage and moisture ingress, and provided an insulating structure of superior resistance to vibration.

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Claim 8: The rejection is as set forth above in claim 1 wherein Boyer discloses a low-temperature melting resin encasing the battery pack (See Boyer page 1, paragraphs [0024] and [0029]).

Claim 12: Watanabe et al. discloses that at least one battery cell assembly further comprises a flat cell (col. 4: 49-59).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have substituted the cylindrical cell of the Cisar et al. combination with the flat cell of Watanabe et al. because Watanabe et al. known cylindrical and flat cells for use in a battery pack that would have reduced protection circuit malfunction generated by battery electrolyte leakage and moisture ingress, and provided an insulating structure of superior resistance to vibration.

7. Claims 27 and 29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cisar et al., and further in view of Boyer as applied to claim 22 above, and further in view of Young (5,622,789).

Cisar et al. and Boyer are as applied, argued, and disclosed above, and incorporated herein.

The Cisar et al. combination does not disclose battery cell voltage and current monitoring and status indication circuitry.

Young et al. on col. 1: 49-col. 6: 34 discloses battery cell voltage and current monitoring and status indication circuitry, and interfacing connection (circuit board) means between the

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battery cell and battery cell monitoring and status indication circuitry (col. 3: 45-col. 4: 7; col. 4: 40-43; col. 5: 30-35 and 59-64; and col. 8: 4-45).

Therefore, it would have been obvious to one of ordinary skill in the art at time the invention was made to have modified the battery pack of the Cisar et al. combination by incorporating the battery cell voltage and current monitoring and status indication circuitry of Young because Young teaches battery cell voltage and current monitoring and status indication circuitry that would have provided a mechanism to monitor and charge each cell independently, and a mechanism to determine if a cell is damaged to prevent damaged cell from being charged thereby extending the life of the battery and improving the overall performance of the battery pack.

Allowable Subject Matter

8. Claim 20 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

U.S. Patent No. 6,605,922, filed 30 November 2001 and issued 12 August 2003, discloses on col. 7: 65 - col. 8: 45 a method of manufacturing a battery pack comprising the steps of: placing a battery pack inside a mold cavity; closing the mold and injecting into the mold low

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temperature resins such as polyamide or polyurethane; allowing the mold to cool; and removing the battery pack from the mold.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thomas H Parsons whose telephone number is (703) 306-9072. The examiner can normally be reached on M-F (7:00-4:30) First Friday Off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Pat Ryan can be reached on (703) 308-2383. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.

Thomas H Parsons
Examiner
Art Unit 1745


Patrick Ryan
Supervisory Patent Examiner
Technology Center 1700